

## Questions/Comments Regarding JPL D-25647 DEWAR Subsystem Specification

Dated 12 March 2004

### 3.2.1.2.3 Dewar Component Mass

The mass of each MIRI component shall be measured to an accuracy of 0.2% or +/- 0.1kg, whichever is greater. This includes a measurement of the mass at launch.

Question:

Is the cryogen viewed as a component of the system to which this requirement applies?

Answer:

**Yes, the cryogen is part of the full system whose mass needs to be known at launch.**

### 3.2.1.3.2.2 Fill Orientation

The fill orientation for flight will be the +V3 up, the same orientation as the launch orientation given in 3.2.3.1.1.1.

Question:

It is implied that this will be the *only* orientation that we need consider when H2 is in the tank. Please confirm.

Answer:

**Yes, there is *only one* orientation the Dewar needs to accommodate the flight cryogen.**

### 3.2.2.1.1 Baseline Operating Point

The Baseline Operating Point is defined as:

ISIM thermal interfaces at their Baseline temperatures per Table 3.2.4.3-1

Question:

Incorrect the table number (cited several times) found on page 49 to what is referenced here (and elsewhere). No action requested – only confirmation of this finding.

Answer:

**You are correct, the Table being referred to is Table 3.2.4.3.1.1-1**

#### 3.2.3.2.12 Region 2 – DCE Heaters

The location and temperature monitoring characteristics of all MIRI temperature sensors shall be documented in the Dewar -MIRI ICD and provided to JPL.

Question:

Paragraph title doesn't match the words. Missing requirement?

Answer:

**The correct title is: "Region 2- Temperature monitors"**

#### 3.2.3.4.2 Data Frames, Housekeeping

The Dewar shall identify a standard housekeeping data frame for each operating mode described in Section 7 below.

Question:

Section 7 was not provided.

Answer:

**The requirement is revised as follows:**

#### **3.2.3.4.2 Housekeeping Packet**

**The Contractor shall identify a standard housekeeping packet, subject to JPL approval, for each operating mode described in Section 3.1, above.**

**Additionally, 3.2.3.4.3 Data Frames, Critical Data, is revised as follows:**

#### **3.2.3.4.3 Launch Critical Telemetry Packet**

**The Contractor shall identify a launch critical telemetry packet, subject to JPL approval, for each applicable operating mode described in Section 3.1, above.**

#### 3.2.4.3.6 Self-Induced Shock Testing

Testing for self induced shock shall be performed by operating any shock-inducing devices a minimum of two times.

Question:

Would an externally imposed shock test (2x) be an acceptable alternative?

Answer:

**In work**

#### 3.2.5.2.1 Abnormal Input Voltage

The Dewar Control Electronics shall survive steady-state voltages in the range 0 V dc to 36 V dc and momentary (no greater than 10 ms) voltages in the range 0 V dc to 42 V dc.

Question:

Paragraph 3 2.3.3.1.8 defines a steady state input voltage of 40 volts over-voltage, yet in this paragraph defines a voltage of 42 volts as an over-voltage value. Which is the real requirement, or why are they different?

Answer:

**In work**

#### 3.2.5.2.3

Question:

This clock signal interface does not show on Figure 1.3-1, and in fact is not needed in our proposed operational concept of the DCE. Where is the requirement for this clock synchronization?

Answer:

**The requirement associated with 3.2.5.2.3 should be deleted.**

#### 3.3.3.2.4.1 Dewar Vent Valve Control

Accommodations to permit control of the Dewar Vent Valve opening from the DCE upon receipt of a command from the SC CTP shall be provided.

#### 3.3.3.2.4.2 Dewar Vent Valve Open Command

The DCE shall issue the control signals to open the Dewar Vent Valve TBD (minutes) after launch and faring separation.

Question:

Is this a stored command performed autonomously of the S/C or does the DCE just need to accept the command per 3.3.3.2.4.1?

Answer:

**Do not have to perform this autonomously in the DCE. A command will come from the S/C to the DCE when it is appropriate to open the vent valve.**

#### 3.3.5.2.1 Toggle Commands

The Dewar Assembly shall not use state-dependent or “toggle” commands.

Question:

Please clarify what “toggle commands” means. Does this mean no latching relays allowed in the hardware?

Answer:

**With a “toggle command,” sending the same command twice results in two separate states, which is prohibited. This requirement does not prohibit the use of latching relays.**

#### 3.3.10 Structural Design Criteria

Structural support shall be provided for all the Dewar components such that major component loads transmitted across the interface into the MIRI does not exceed the design limit loads depicted in Figure 3.3.9.1.3-1 for Dewar subsystem design.

Question:

Missing figure 3.3.9.1.3-1.

Answer:

**The correct reference is Figure 3.3.10.2.3-1.**

#### 3.3.10.8.4 Kinematic Mounts - Test

Question:

No text provided.

Answer:

**The requirement was combined with the following requirement, 3.3.10.9, and the title was inadvertently left in the specification.**

#### 3.3.10.11 Strength Test Requirements:

All non-beryllium (this includes non-metallic composite and metal matrix structural elements) primary and secondary structural elements shall undergo a strength test to 1.25 x limit loads.

Question:

Redundant with 3.3.10.3.

Answer:

**Yes.**

The cover letter, paragraph entitled "Contract Incentive" suggests for bidder to develop incentives for technical, schedule, and cost performance in lieu of a fixed-fee contract.

The Specimen Contract, Article 2, Paragraph 4.0 Payment of Incentive Fee, suggests Payment of any Incentive Fee will be provisional and is subject to the Dewar On-Orbit Performance based on 180 days after launch.

I would like clarification.

Question No. 1:

Is it your intent to include the on-orbit performance incentive as it is not included in the cover letter? (There was indication at the pre-proposal conference that this would not be included.)

JPL Answer:

**JPL intends to include an On-Orbit Performance incentive in this subcontract.**

Question No. 2

If it is included, is it a separate fee pool from other types of incentive fee such as the technical/schedule/cost and I am to assume not all fee would be relinquished should there be a failure?

JPL answer:

**The On-Orbit Performance Incentive will be a separate fee pool from the technical, schedule and cost incentives.**

**The extent to which provisionally paid fee would be required to be repaid is subject to negotiation. You are to propose various approaches for consideration.**

**If a failure were to occur with the JWST and the cause was attributable to the dewar, the Contractor could be required to refund all or a portion of the provisional payments made to the Contractor based on the findings of the NASA Failure Review Board (FRB).**

Question No. 3:

Should there be a failure, what is the criteria that would be used to document a MIRI DEWAR failure and require the contractor to relinquish the on-orbit incentive fee?

JPL answer:

**Should there be a failure, an independent NASA FRB would make the determination as to whether the cause of the failure was due to the Contractor, the JPL/Government or both. Using the findings of the NASA FRB, the JPL Failure Review Board will make the determination of the percentage of JPL/Government responsibility versus Contractor responsibility. Based on the findings of the JPL Failure Review Board, the Contractor will be required to repay a portion or all of the provisional payments made for technical, schedule, cost and On-Orbit Performance incentives.**